1. (Currently Amended) A detector base unit specially adapted to a system for position determination of objects in motion and for use in rooms with different kinds of noise, characterised in that it comprises:

signal processing means for receiving and sampling several different signals,

means for performing the following steps for processing the received data:

analog to digital conversion of the sampled signals;

transmission to a memory for intermediate storage of digitalised signals;

categorisation of the signals in frequency blocks for further processing with Fourier transform for calculation of Doppler shift from the position to the frequency block with the strongest signal;

use of line detector for detection of single-frequency noise sources on the different signals, for correcting and providing accepted data;

pattern comparison of all bits in order ~~in order~~ to determine a signature which is characterising for time and Doppler shift;

warning to a central unit via a network interface when a sufficient volume of accepted data has been processed and is ready for further processing in the central unit, and

transmission of the data to the central unit.

2. (Previously Presented) A detector base unit according to claim 1, characterised in that signal processing means are arranged for sampling at least 2 channels.

3. (Previously Presented) A detector base unit according to claim 1, characterised in that fractional Fourier transform is employed when the transmitters transmit chirp FSK signals.

4. (Previously Presented) A first transmitter unit for use in a system for determining the position of objects that may be in motion in a room with noise comprising:

an ultrasound transducer adapted for transmitting signals with several different base frequencies;

a control unit for controlling signal transmission; and

a receiver unit,

wherein the first transmitter unit is adapted to:

use said receiver unit to detect whether other transmitter units are transmitting signals; and

control transmission of ultrasound signals so that transmission only takes place when no other transmitter units are transmitting signals.

5. (Cancelled)

6. (Previously Presented) A transmitter unit according to claim 4, characterised in that it is adapted to transmit at least two base frequencies in the ultrasound range by means of FSK.

7. (Previously Presented) A transmitter unit according to claim 4, characterised in that in addition to the various base frequencies, the ultrasound transducer is adapted to vary the different base frequencies with rising and descending frequencies in the form of chirp FSK.

8. (Previously Presented) A transmitter unit according to claim 4, characterised in that the control unit is adapted to activate the ultrasound transducer asynchronously according to preset time frames and/or detection of movement.

9. (Previously Presented) A transmitter unit according to claim 4, characterised in that the control unit is adapted to activate the ultrasound transducer so that it starts transmitting signals if attempts are made to remove and/or open the transmitter unit.

10. (Previously Presented) A system for position determination of at least one transmitter unit in rooms with different kinds of noise, characterised in that it comprises:

at least one transmitter unit with one ultrasound transducer for transmitting signals on several different frequencies,

one transducer and at least one more receiver unit for detecting ultrasound signals,

at least one detector base unit for signal processing connected to the receiver units,

a network that interconnects several detector base units, plus at least one central unit for acquisition and interpretation of processed data from detector base units via the network connection, and where the data volume transmitted from the detector base units to the central unit(s) is reduced to a minimum since signal noise and non-essential signal components are substantially removed from the signals by means of signal processing in the detector base unit before transmission of the signals to the central unit(s), plus

processing means in the central unit(s) for determining the position of a transmitter unit.

11. (Previously Presented) A method for determining the position of one or more transmitter units in rooms with various kinds of noise, characterised in that the method comprises:

transmitting from the transmitter unit ultrasound signals with several different frequencies,

sampling the signals in a detector base unit received from at least two detector units, and furthermore performing the following steps for processing the received data:

analog to digital conversion of the sampled signals;

intermediate storage of sampled and accumulated values;

categorisation of resulting data from the signals in frequency blocks for further processing with Fourier transform for calculation of Doppler shift based on the position of the frequency block with the strongest signal;

differentiating filtering as a function of time for reduction of single-frequency noise sources on the different signals, in order to obtain accepted data;

pattern comparison of all bits in order to determine a signature which is characterising for time and Doppler shift;

warning to a central unit via a network interface when a sufficient volume of accepted data has been processed in the detector base unit(s) and is ready for further processing in the central unit;

transmission of the data to the central unit, and

comparison of received signal parameters from several detector units in a room for determining the position of transmitter units in the room.

12. (Previously Presented) A method according to claim 10, characterised in that fractional Fourier transform is employed when the transmitter units transmit chirp FSK signals.

13. (Previously Presented) A method according to claim 10, characterised in that the compared signal parameters are signal strength.